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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,505	07/03/2001	Konrad Grob	GIS-3.2.026/4049	4008

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EXAMINER


JACKSON, ANDRE K

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/898,505	Applicant(s) GROB ET AL.	
	Examiner André K. Jackson	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed on 10/29/03 has been entered and the finality of the rejection of the last Office action is withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Grob (Injection techniques in capillary GC).

Regarding claim 23, Grob (Injection techniques in capillary GC) discloses heating at least a lower portion of the vaporization chamber to a temperature above a vaporization temperature of a sample to be analyzed; injecting the sample in proximity of an upper portion of the vaporization chamber and releasing the sample in form of a liquid band crossing the vaporization chamber at a speed; stopping the liquid band by stop means; and vaporizing the sample in a lower portion of the heated chamber (Page 1009).

Regarding claim 24, Grob (Injection techniques in capillary GC) disclose where the heating of the lower portion of the chamber includes heating to vaporize all of the sample, further operating at a lower temperature in an upper portion of the vaporization chamber than that within the lower portion of the vaporization chamber (Pages 1009,1010,1011,1012,1013).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1,2,4-9,10,12,13,17,19,21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grob (Injection techniques in capillary GC) in view of Heikkila et al.

Regarding 1, Grob discloses "Injection techniques in capillary GC" teaches an elongated and constantly heated vaporization chamber (Pages 1009-1010); a syringe equipped with a needle configured to render vaporization of the sample liquid within the needle negligible (Pages 1009-1010; Figure 1a-1d), and further containing a means for stopping and vaporizing the sample liquid above the column entrance (Pages 1012-

1013; Figure 4). A distance between the exit of the needle and a means for stopping and vaporizing the sample liquid above the column entrance is not disclosed by Grob (Injection techniques in capillary GC). However, since Heikkila et al. teaches in "Analysis of organic compounds in baths used in the manufacture of printed circuit board using novel chromatographic methods" that the column has a length between 1 and 100 centimeters (Column 5, lines 57-60). Therefore, it would be well within the purview of the skilled artisan to modify Grob (Injection techniques in capillary GC) to have the stop means at particular lengths according to the length of the column as suggested by Heikkila et al. since the column can have any suitable length between 1 and 100 centimeters according to what the user needs.

Regarding claim 2, a distance between the exit of the needle and a means for stopping and vaporizing the sample liquid above the column entrance is not disclosed by Grob (Injection techniques in capillary GC). However, Heikkila et al. teaches that the column has a length of length between 1 and 100 centimeters (Column 5, lines 57-60). Therefore, it would be well within the purview of the skilled artisan to modify Grob (Injection techniques in capillary GC) to have the stop means at particular lengths according to the length of the column as suggested by Heikkila et al. since the column can have any suitable length between length between 1 and 100 centimeters according to what the user needs.

Regarding claim 4, Grob (Injection techniques in capillary GC) does not disclose the diameter of the internal chamber of the needle. However, it is well within the purview of the skilled artisan to experiment with different diameters of needles to achieve various injection velocities.

Regarding claim 5, Grob (Injection techniques in capillary GC) disclose where the chamber is cooled (Page1009).

Regarding claim 6, Grob does not disclose a thermal insulating material for the needle; however, it is well within the purview of the skilled artisan to include this feature to keep the temperature of the need at a specific temperature.

Regarding claim 7, Grob does not disclose a thermal insulating material for the needle; however, it is well within the purview of the skilled artisan to include this feature to keep the temperature of the need at a specific temperature.

Regarding claims 8 and 9, Grob (Injection techniques in capillary GC) does not explicitly state the length of the vaporization chamber. However, Heikkila et al. teaches that the column has a length of length between 1 and 100 centimeters (Column 5, lines 57-60). Therefore, it would be well within the purview of the skilled artisan to modify Grob (Injection techniques in capillary GC) to have different lengths of the column as suggested by Heikkila et al. since the column can have a length

between length between 1 and 100 centimeters according to what the user needs.

Regarding claim 10, Grob (Injection techniques in capillary GC) does not disclose a coiled chamber. It is considered a design choice and well within the purview of the skilled artisan to alter the shape of the chamber. Having a coiled chamber would provide a longer length.

Regarding claim 12, Grob does not disclose the composition of the chamber, but it is well within the purview of the skilled artisan to use any material desired for the chamber therefore the artisan could use silcosteel for the chamber for its inert qualities.

Regarding claim 13, Grob (Injection techniques in capillary GC) discloses where a septum is mounted on the injector head (Column 1, line 21).

Regarding claim 17, Grob (Injection techniques in capillary GC) teaches an elongated and constantly heated vaporization chamber (Pages 1009-1010); a syringe equipped with a needle configured to render vaporization of the sample liquid within the needle negligible (Pages 1009-1010; Figure 1a-1d), and further containing a means for stopping and vaporizing the sample liquid above the column entrance (Pages 1012-1013; Figure 4). Grob does not disclose a distance between the exit of the needle and a means for stopping and vaporizing the sample liquid above the column entrance. However, Heikkila et al. teaches that the

column has a length between 1 and 100 centimeters (Column 5, lines 57-60). Therefore, it would be well within the purview of the skilled artisan to modify Grob (Injection techniques in capillary GC) to have the stop means at particular lengths according to the length of the column as suggested by Heikkila et al. since the column can have a length between length between 1 and 100 centimeters according to what the user needs.

Regarding claim 19, Grob (Injection techniques in capillary GC) discloses where the heating means for the vaporization chamber are provided to achieve a maximum heating effect to vaporize the entire sample towards the base of the chamber and lower temperature in the upper part of the chamber (Page 2 and 3).

Regarding 21, Grob (Injection techniques in capillary GC) discloses a syringe equipped with a needle where the sample liquid has not been vaporized (Pages 1009-1010; Figure 1a-1d); a means for heating at east part of the chamber and further containing a means for stopping and vaporizing the sample liquid above the column entrance (Pages 1012-1013; Figure 4). A distance between the exit of the needle and a means for stopping and vaporizing the sample liquid above the column entrance is not disclosed by Grob (Injection techniques in capillary GC). However, since Heikkila et al. teaches that the column has a length between column has a length between 1 and 100 centimeters (Column 5, lines 57-60). Therefore, it would be well within the purview of the skilled artisan to

modify Grob (Injection techniques in capillary GC) to have the stop means at particular lengths according to the length of the column as suggested by Heikkila et al. since the column can a length between 1 and 100 centimeters according to what the user needs.

Regarding claim 22, Grob (Injection techniques in capillary GC) discloses a heating means for the elongated chamber arranged and configured to vaporize the sample towards the base of the chamber and provide an upper part of the chamber that is a lower temperature than the base (Page 1010).

6. Claims 3,14,16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grob (Injection techniques in capillary GC) in view of Heikkila et al. as applied to claim 1 above, and further in view of Grob et al. (6451614).

Regarding claim 3, Grob does not disclose a distance where the needle extends into the chamber of less than 30 mm. However, Grob et al. disclose in "Method and device for the vaporization injection" where the needle extends into the chamber below 30 mm (Column 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Grob to include a distance where the needle extends into the chamber less than 30 mm as taught by Grob et al. since they are from the same field of endeavor.

Regarding claim 14, Grob (Injection techniques in capillary GC) does not disclose where there is a restriction in the lower part containing the stop. However, Grob et al. disclose where there is a restriction in the lower part containing the stop (Column 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Grob (Injection techniques in capillary GC) to include where there is a restriction in the lower part containing the stop as taught by Grob et al. since this would cause a higher flow pressure.

Regarding claim 16, Grob (Injection techniques in capillary GC) does not disclose that the heating means for the vaporization chamber are provided operating at the vaporization temperature of the sample in correspondence to the restriction and at a lower temperature in the upper part of the chamber. However, Grob et al. disclose that the heating means for the vaporization chamber are provided operating at the vaporization temperature of the sample in correspondence to the restriction and at a lower temperature in the upper part of the chamber (Abstract, Columns 2 and 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Grob (Injection techniques in capillary GC) to include the heating means for the vaporization chamber are provided operating at the vaporization temperature of the sample in correspondence to the restriction and at a

lower temperature in the upper part of the chamber as taught by Grob et al. since this would cause a higher flow pressure.

Regarding claim 18, Grob (Injection techniques in capillary GC) does not disclose a distance where the needle extends into the chamber of less than 30 mm. However, Grob et al. disclose where the needle extends into the chamber below 30 mm (Column 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Grob (Injection techniques in capillary GC) to include a distance where the needle extends into the chamber less than 30 mm as taught by Grob et al. since they are from the same field of endeavor.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grob (Injection techniques in capillary GC) in view of Heikkila et al. as applied to claim 1 above and in further view of Sasano et al.

Regarding claim 11, neither Grob et al. nor Heikkila et al. disclose where the chamber is made from metal. However, Sasano et al. discloses where the liner is made from metal (Column 2, line 68). Therefore, to make the chamber is made from metal as taught by Sasano et al. since this would make it easier to heat or cool the chamber.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grob (Injection techniques in capillary GC), Heikkila et al. and Grob et al.

(6451614) as applied to claim 14 above, and further in view of Sasano et al.

Regarding claim 15, neither Grob, Heikkila et al. nor Grob et al. disclose where the restriction is connected to the upper part of the chamber by a funneled wall. However, Sasano et al. discloses where the restriction is connected to the upper part of the chamber by a funneled wall (Figure 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Grob to include where the restriction is connected to the upper part of the chamber by a funneled wall as taught by Sasano et al. since the funneled wall makes for an easier flow.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to André K. Jackson whose telephone number is (703) 305-1522. The examiner can normally be reached on Mon.-Thurs. 7AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A.J.



November 26, 2003



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